
Development of COVID-19 Antiviral Therapy Using Human iPSC-Derived Lung Organoids

Grant Award Details

Development of COVID-19 Antiviral Therapy Using Human iPSC-Derived Lung Organoids

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-12170

Project Objective: To identify lead compounds targeting the main protease of SARS-CoV2 as therapeutics for COVID-19

Investigator:

Name: Tariq Rana

Institution: University of California, San Diego

Type: PI

Disease Focus: COVID-19, Infectious Disease

Human Stem Cell Use: iPS Cell

Award Value: \$250,000

Status: Active

Grant Application Details

Application Title: Development of COVID-19 Antiviral Therapy Using Human iPSC-Derived Lung Organoids

Public Abstract:**Research Objective**

To develop a new therapy for COVID-19 using human iPSC-derived lung organoids that targets SARS-CoV-2 protease known as the virus' "Achilles Heel"

Impact

Our work, if successful, will bring a class of new drugs directly targeting viral enzyme and open the door for future COVID therapies.

Major Proposed Activities

- Complete synthesis and testing of new inhibitors
- Optimize and validate the new compounds activities in lung cells and organoids
- Rapidly expand the efficacy of SARS-CoV-2 inhibitors in a large panel of lung organoids from African-American, Latino, and Caucasian men and women.
- ensure that any newly emerging therapy will be applicable to all patients regardless of gender and race.

Statement of Benefit to California:

The emergence of novel coronavirus SARS-CoV-2 and its associated disease, COVID-19, has presented an urgent global public health crisis. In California, more than 700,000 individuals have been infected leading ~13,000 deaths. Further, Californians are grappling with the economic impact due to job loss and business shutdowns. Finding a treatment for COVID-19 would have a huge impact on saving lives, preventing new infections, and helping people to return to normal activities of life.

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